

## Respiratory symptoms and sociodemographic factors among agricultural workers exposed to calcium carbide as fruits ripening agent in Kuala Kangsar, Perak: a preliminary study

### ABSTRACT

**Background:** In agriculture, calcium carbide ( $\text{CaC}_2$ ) is used as a chemical in fruit ripening and as a source of acetylene gas, which acts as a reducing agent with same fruit-ripening attributes as ethylene. The reaction between  $\text{CaC}_2$  and moisture produces acetylene, which consequently leads to ripening of fruits. Many existing studies focus on the effects of calcium carbide on fruit texture, taste, and nutritional content, but only a limited number explore the level of occupational exposure of  $\text{CaC}_2$  and its health effects among workers involved in the ripening process. **Objective:** The aim of this article is to assess the respiratory symptoms of agricultural workers through questionnaire and to determine the most significant sociodemographic factors contributing to respiratory symptoms. **Methods:** The respondents were interviewed using two set of questionnaires: a general structured questionnaire and IUALTD Bronchial Symptoms questionnaire. Data in this study were analyzed statistically using SPSS. Chi-square test was used to analyze the relationship between sociodemographic factors with respiratory symptoms. Significant level used for this study was P less than 0.05. **Result:** The most regular symptom exhibited by the respondents was morning phlegm (37.5%), followed by morning cough (33%), shortness of breath (25%), and chest tightness (16.7%). Age, duration of employment, smoking status, handling of calcium carbide, and awareness of the dangers of calcium carbide did not have a significant association with all the respiratory symptoms. **Conclusion:** Considering the prevalence of respiratory symptoms among the respondents, we suggest that further studies on the effects of  $\text{CaC}_2$  are warranted. Findings will be beneficial to creating public awareness on the effects of hazardous chemicals on human health and to increase awareness of impact of the use of calcium carbide on the health of workers working with  $\text{CaC}_2$ .

**Keyword:** Calcium carbide; Sociodemographic factors; Respiratory symptoms